

**REMARKS**

Claims 2-9 and 11-14 are pending. By this Amendment, claims 2-4 are amended. Support for the amendments to the claims may be found, for example, in the specification at paragraph [0013]. No new matter is added.

In view of the foregoing amendments and following remarks, reconsideration and allowance of the claims are respectfully requested.

**I. Allowable Subject Matter**

The Office Action, on page 8, indicates that claims 5 and 6 recite allowable subject matter. Specifically, these claims are indicated as allowable if rewritten in independent form to include all of the features of the base claim and any intervening claims. Applicant appreciates this indication of allowability, but respectfully submits that at least claim 3, from which these claims depend, and the other claims depending from claim 3, are allowable for at least the reasons indicated below.

**II. Rejection Under 35 U.S.C. §112**

The Office Action rejects claim 4 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Applicant respectfully traverses the rejection.

Specifically, the Office Action asserts that it is unclear whether the epoxy group is required. By this Amendment, claim 4 recites, *inter alia*, "... a protected carboxyl group, and an epoxy group ... ." Thus, Applicant respectfully asserts that claim 4, as amended, is definite.

Further, Applicant respectfully asserts that the "." of the ".,." was removed in the previous Response, and its removal is reflected in pending claim 4.

For at least the above reasons, Applicant respectfully asserts that claim 4 meets the requirements of 35 U.S.C. §112, second paragraph. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

### III. Rejections Under 35 U.S.C. §102

#### A. Ishidoya

The Office Action rejects claims 2, 4, 11 and 12 under 35 U.S.C. §102(b) over U.S. Patent No. 5,521,011 to Ishidoya et al. ("Ishidoya"). Applicant respectfully traverses the rejection.

By this Amendment, claim 2 recites, *inter alia*, "A resist underlayer anti-reflective coating forming composition ... comprising: a polymer compound ... wherein the resist underlayer anti-reflective coating forming composition contains no strong acid catalyst." Claim 4 recites similar features. Applicant respectfully asserts that Ishidoya fails to disclose at least the above features of claims 2 and 4.

Regarding claim 2, the Office Action asserts that Examples 13, 18, 19, 25, 28, 51, 59, 62-64 and 80 of Ishidoya encompass the features of claim 2. However, Examples 18, 19, 25, 28, 51, 59, 62-64 and 80 of Ishidoya all include a latent acid catalyst and, thus, Applicant respectfully asserts they are not a resist underlayer anti-reflective coating forming composition that contains no strong acid catalyst, as recited in claim 2.

As to Example 13, Applicant respectfully asserts that there is no indication that this example contains polymer. In contrast, the resist underlayer anti-reflective coating forming composition of claim 2 comprises a polymer compound. By comprising the polymer compound, the claimed resist underlayer anti-reflective coating forming composition is not affected by sublimation of low molecular weight compounds and will generate no sublimates because no strong acid catalyst is used.

Additionally, in the formation of compound (A), which is present in Example 13 of Ishidoya, hydrochloric acid is used as well as additional catalysts, such as 2, 2'-azo-bis-isobutyronitrile. See Ishidoya, col. 19, lines 15-23 and col. 20, lines 5-29. Thus, Applicant respectfully asserts that these acids and catalysts will be present in the final compound (A)

and, thus, will be present in the final solution of Ishidoya. For at least these reasons, Applicant respectfully asserts that Ishidoya does not disclose a resist underlayer anti-reflective coating forming composition that contains no strong acid catalyst, as recited in claim 2.

Regarding claim 4, the Office Action asserts that Examples 10, 14, 26, 29 and 60 of Ishidoya encompass the features of claim 4. However, Examples 26, 29 and 60 all use latent acid catalysts and, thus, do not disclose a resist underlayer anti-reflective coating forming composition that contains no strong acid catalyst, as recited in claim 4.

As to Examples 10 and 14, Applicant respectfully asserts that there is no indication that these examples contain polymer. However, the resist underlayer anti-reflective coating forming composition of claim 4 comprises a polymer compound. The polymer compound as recited in claim 4 yields the benefits as discussed above.

Further, compound D-1 of Ishidoya comprises  $\alpha$ ,  $\beta$ -unsaturated compound A-3(a), which was formed using hydrochloric acid. See Ishidoya, col. 20, Table 4 and col. 18, Table 1. Additionally, D-1 contains additional catalysts. See Ishidoya, col. 20, Table 4. Thus, as discussed above, Applicant respectfully asserts that at least some of the acid and catalyst in component D-1 will be present in the compositions of Examples 10 and 14, which both contain compound D-1. Therefore, Applicant respectfully asserts that Ishidoya does not disclose a resist underlayer anti-reflective coating forming composition that contains no strong acid catalyst, as recited in claim 4.

For at least the reasons stated above, claims 2 and 4 are not anticipated by Ishidoya. The remaining claims variously depend from claim 2 and likewise are not anticipated. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

**B. Lees**

The Office Action rejects claims 2 and 8 under 35 U.S.C. §102(b) over U.S. Patent No. 5,380,804 to Lees et al. ("Lees"). Applicant respectfully traverses the rejection.

The Office Action asserts "[t]he issue of anticipate [sic] is specific to the one specie of composition reproduced below." Office Action, page 3. The Office Action then reproduces Example 3, part A of Lees and asserts that GMA copolymer is a polymer compound having an epoxy, that TCI crosslinker is a compound with a molecular weight of 2000 or less having at least two carboxyl groups and an s-triazine trione skeleton, and that DMF is a solvent. See Office Action, page 4. However, Applicant respectfully asserts that Example 3, part A of Lees discloses the use of GMA copolymers, TCI crosslinker and a cure catalyst. See Lees, col. 5, lines 43-46.

In contrast, the resist underlayer anti-reflective coating forming composition recited in claim 2 contains no strong acid catalyst and, thus, Applicant respectfully asserts that this portion of Lees does not disclose each and every feature of claim 2. Additionally, the absence of a cure catalyst leads to improved shelf stability that impedes the creation of foreign matter. Thus, there is no failure due to the presence of foreign matter when the composition is applied on a semiconductor substrate. For at least the above reasons, Applicant respectfully asserts that Lees does not disclose each and every feature of claim 2.

Claim 2 is not anticipated by Lees. Claim 8 depends from claim 2 and, thus, is also not anticipated. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

**IV. Rejection Under 35 U.S.C. §103**

**A. Kishioka**

The Office Action rejects claims 3, 7 and 9 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2004/0110096 to Kishioka et al. ("Kishioka"). Applicant respectfully traverses the rejection.

Claim 3 recites features similar to those in claims 2 and 4, as quoted above. Applicant respectfully asserts that Kishioka requires the use of p-toluene sulfonic acid as an acid catalyst. See Kishioka, Examples 1-5. Additionally, the Office Action provides no reason or rationale for one of ordinary skill in the art to have expected the composition disclosed in Kishioka can or should be used without a p-toluene sulfonic acid catalyst. Thus, Applicant respectfully asserts that Kishioka would not have rendered obvious each and every feature of claim 3.

Claim 3 would not have been rendered obvious by Kishioka. Claims 7 and 9 depend from claim 3 and likewise would not have been rendered obvious. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

**B. Meador**

The Office Action rejects claims 2 and 11-14 under 35 U.S.C. §103(a) over U.S. Patent No. 5,919,599 to Meador et al. ("Meador"). Applicant respectfully traverses the rejection.

The thermosetting anti-reflective coating composition of Meador comprises: a) the reaction product of a high molecular weight acrylic polymer or copolymer; b) an alkylated aminoplast crosslinking agent; c) a protonic acid catalyst; and d) a low-to-medium boiling alcohol-containing solvent. See Meador, col. 4, lines 33-53. Thus, Applicant respectfully asserts that Meador requires a protonic acid catalyst. For example, Meador discloses the use of p-toluene sulfonic acid. See Meador, col. 6, line 29 and Example 2. Thus, Applicant

respectfully asserts that it would not have been obvious to one of ordinary skill in the art to have modified the composition disclosed in Meador by removing the acid catalyst.

Additionally, the Office Action provides no reason or rationale for of ordinary skill in the art to have removed the protonic acid catalyst from the composition of Meador.

Further, Applicant respectfully asserts that Meador does not disclose a composition containing both epoxy groups and protected or unprotected carboxyl groups. Further, the Office Action provides no alleged benefit or desirability for one of ordinary skill in the art to have combined both an epoxy and a carboxyl group and, thus, Applicant respectfully asserts that the Office Action does not present any reason or rationale for one of ordinary skill in the art to have modified the disclosure of Meador to include both an epoxy and a carboxyl group other than it is merely a possibility.

For at least the reasons stated above, Applicant respectfully asserts that claim 2 would not have been rendered obvious by Meador. The remaining claims depend from claim 2 and likewise would not have been obvious. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

**V. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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